

Application No. 10/634,983

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

1. (Currently Amended) An apparatus comprising:

a connector member having at least one of an exterior periphery surface and an interior periphery surface, and a length; the connector member including ~~and~~ a plurality of conductive members comprising a plurality of conductive fibers ~~having a length~~, the plurality of conductive fibers ~~situated within~~ disposed in a polymer and forming a conductive region ~~situated in relation to~~ adapted to provide current in a surface layer of 1 to 25 microns in at least one of the exterior periphery surface and the interior periphery surface;

wherein the plurality of conductive fibers each ~~having~~ have a first end, a length, a second end, and a diameter in the range of from 0.5 microns to 25 microns, ~~the plurality of conductive fibers situated in a conductive composite member having a length and a diameter in the range of from 1 microns to 2 meters; and~~

a metal coating having a thickness in the range of from .001 microns to 25 microns disposed on at least a portion of the outside surface of a plurality of the conductive ~~composite~~ members;

wherein the plurality of conductive ~~composite~~ members are ~~disposed in the member and are selectively situated~~ located with respect to each other in the connector member ~~and form a matrix configuration~~ including at least one ~~selected~~ dimension between at least a plurality of the conductive ~~composite~~ members; and wherein a polymer is solidified about at least a portion of a periphery of ~~the~~ a plurality of the conductive ~~composite~~ members forming an integral structure.

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2. (Original) The apparatus of **claim 1** wherein the plurality of conductive fibers are pultruded within the polymer.

3. (Original) The apparatus of **claim 2** wherein the plurality of conductive fibers include fibrillated ends extending from a surface of the member.

4. (Original) The apparatus of **claim 1** wherein at least one of the apparatus and the conductive member is not straight along its length and extends in more than one direction.

5. (Original) The apparatus of **claim 1** wherein the apparatus includes a lumen.

6. (Currently Amended) The apparatus of **claim 1** wherein the apparatus further includes an opening in a wall between the interior and exterior periphery surfaces.

7. (Currently Amended) The apparatus of **claim 1** wherein the conductive region is adapted for communication with a circuit.

8. (Original) The apparatus of **claim 1** wherein the conductive region is exposed at a periphery surface.

9. (Original) The apparatus of **claim 1** wherein a plurality of conductive fibers are at least partially coated with an electrically conductive material.

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10. (Currently Amended) The apparatus of **claim 1** wherein the ~~conductive region is~~ members are at least partially coated with an electrically conductive material.

11. (Original) The apparatus of **claim 1** wherein the conductive members comprise a thermally conductive material.

12. (Currently Amended) The apparatus of **claim 1**, wherein the apparatus further includes a plurality of non-conductive members comprising non-conductive fibers, the plurality of non-conductive members being disposed in the connector member and ~~associated with the plurality of~~ conductive members.

13. (Original) The connector of **claim 1** wherein the metal coating is formed by at least one of vacuum deposition, vapor deposition, electroplated, sputter coating, and electroless plated process.

14. (Currently Amended) The apparatus of **claim 1** wherein the conductive ~~member~~ fibers includes at least one of a metal and metal alloy.

15. (Currently Amended) The apparatus of **claim 1** wherein the plurality of conductive ~~member~~ fibers includes a coating material selected from at least one of nickel, copper, gold, platinum, tungsten, silver, palladium, tin, iron, aluminum, zinc, chromium, lead, brass, nickel/boron, gold/carbon, palladium/nickel, and silver carbon.

16. (Original) The apparatus of **claim 14** wherein the metal is an eutectic metal alloy including tin/lead and solder.

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17. (Original) The apparatus of **claim 1** wherein the conductive fibers include carbon and the metal coating has a weight in the range of from 2% to 50% of the weight of the carbon in the conductive member.

18. (Original) The apparatus of **claim 1** wherein the conductive region is within 25 microns of at least one of the exterior periphery surface and the interior periphery surface.

19. (Original) The apparatus of **claim 1** wherein the metal coating has a weight in the range of from 1% to 90% of the weight of the conductive member.

20. (Currently Amended) The apparatus of **claim 1** wherein the plurality of fibers are metal coated and are pultruded in a resin binder to form a selected cross-sectional shape.

21. (Original) The apparatus of **claim 1** wherein the plurality of fibers include carbon and are metal coated and separated from another by at least one of the polymer and an insulating fiber.

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22. (Currently Amended) An apparatus comprising:

a composite member comprising a plurality of conductive fibers, each conductive fiber having a length, outside surface, a diameter in the range of from 0.5 microns to 25 microns, a first end and a second end, the composite member having an outside surface and a length; and

a metal coating having a thickness in the range of from 0.001 microns to 10 microns disposed on at least a portion of the outside surface of a plurality of the conductive fibers;

wherein at least one conductive fiber is spaced from another conductive fiber along at least a portion of the length of the composite member; and wherein the composite member includes a polymer resin solidified about at least a portion of a periphery of the plurality of conductive fibers forming an integral structure;

wherein a plurality of the conductive fibers form at least one set of conductive fibers in ~~association with~~ the composite member, the at least one set of conductive fibers having a length and cross sectional area in the range of from less than 0.01 square microns to 1000 square microns and a metal coating having a thickness disposed on at least a portion of an outside surface of the at least one set of conductive fibers; and

wherein the composite member is a connector including an outside surface adapted to provide current in a layer adjacent to the outside surface.

23. (Canceled)

24. (Original) The apparatus of claim 22 further comprising fibrillated fibers extending from a surface.

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25. (Original) The apparatus of **claim 22** wherein the fibrillated region has a length in the range from 0.001 mm to 100 mm and is substantially flexible.

26. (Original) The apparatus of **claim 22** wherein the fibrillated region comprises an exposed plurality of conductive fibers extending from the member.

27. (Original) The apparatus of **claim 22** wherein the apparatus is suitable for use in an RF electric circuit to conduct current in the range of 1 hertz to 100 giga-hertz.